

## **REMARKS**

This Amendment is filed in response to the Office Action dated September 20, 2006. Applicant first notes with appreciation the Examiner's thorough examination of the application as evidenced by the Office Action. In light of the Office Action, Applicant has amended Claims 1 and 3-6 and added Claims 12-19. Following these amendments, the application now includes five independent claims, namely Claims 1 and 15-18. Applicant respectfully submits that the claims are patentable over the cited references, and requests reconsideration and allowance of the claims in light of the following remarks.

### **I. The Claims Include Patentable Recited Structure**

In paragraph 5, the Office Action notes that the claims recite function, but do not recite distinguishable structure. In light of this, Applicant has amended Claim 1 to recite "a variable capacitance means" that is capable of varying during switching of the device between capacitance values to create a ratio that is  $1 < C_{fiss}/C_{iiss} < 2.0$ . As discussed below, this recited structure is patentable over the cited references.

### **II. The Claims Are Patentable**

In paragraphs 1-4, the Office Action rejects Claims 1-8 and 10 under 35 U.S.C. § 102(b) as being anticipated by Williams US 6,291,298. In paragraphs 25-30, the Office Action rejects claims 9 and 11 as obvious in light of the combination of Williams with Jones US 4,683,387. Applicant disagrees with these rejections.

The Office Action, in principle, refers to figure 7E of Williams in alleging that Williams anticipates claim 1. In this regard, Applicant respectfully submits that the 7E figure of Williams is not correct. Applicant has reproduced below figures 7E and 7F with Applicant's notes to illustrate inconsistencies in the Williams disclosure. As illustrated, the first part of the slope in figure 7E designated 10 is inversely proportional to an initial value of the input capacitance, that is  $1/C_{iiss}$ , during switching of the device. The second part 12 is inversely proportional to a final value during switching, which is  $1/C_{fiss}$ . The second part 12 is steeper than the first part 10,

implying that  $C_{fiss} < C_{iiss}$ . This is unrealistic and is borne out by figure 7F, where it is clearly shown at 16 that the initial value  $C_{iiss}$  is smaller than a second effective value  $C_G(\text{eff})$  shown at 18. Essentially, the graph shows  $1/C_{fiss} > 1/C_{iiss}$ , which is  $C_{fiss} < C_{iiss}$ , which is not possible and wrong.

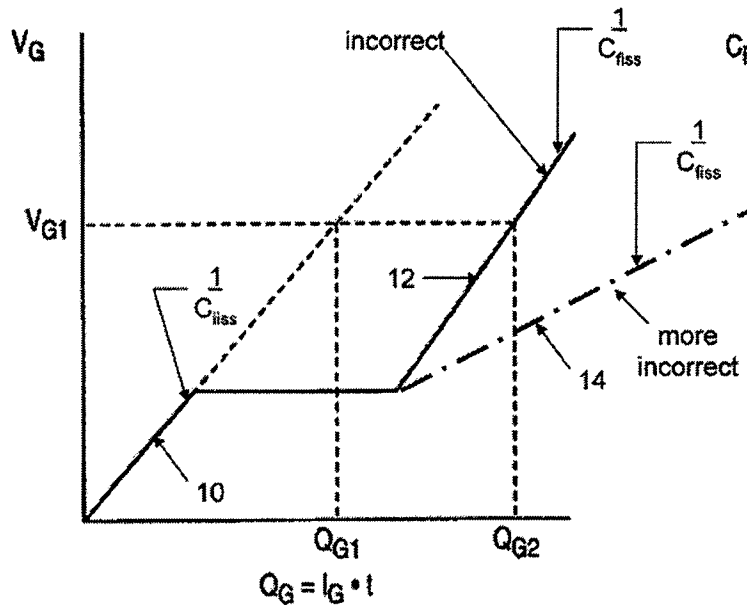


FIG. 7E

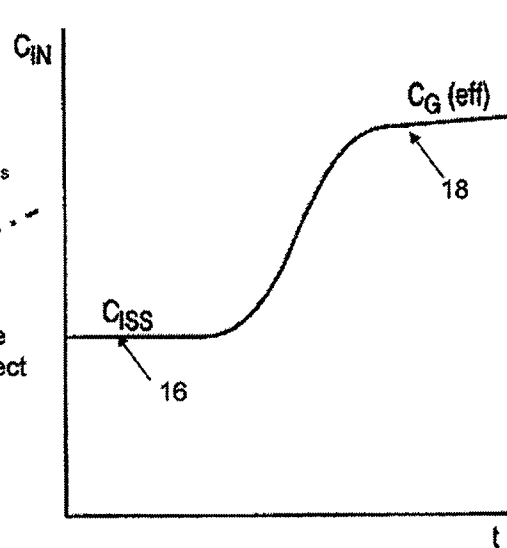


FIG. 7F

See also the applicant's specification on page 1, line 16 to page 2, line 2, where it is stated:

It is well known that the Miller effect has an influence on the input capacitance at the gate of devices of the aforementioned kind in that the input capacitance of a typical commercially available MOSFET varies during switching of the device. The input capacitance has a first value  $C_{iiss}$  when the device is off and a second value  $C_{fiss}$  when the device is on. The ratio of the second and first values for a known and commercially available IRF 740 power MOSFET is in the order of 2.5. It has been found that such a ratio impairs the switching speed of these devices.

The aforementioned second part of the slope after the Millar Plateau would have been more realistic, had it been shown as at 14 in the below reproduced figures.

Hence, in Fig 7E, Williams illustrates a situation wherein  $C_{fiss}/C_{iiss} < 1.0$ , which is unrealistic and wrong and not  $1 < C_{fiss}/C_{iiss} < 2.0$ , as now claimed in the Applicant's amended Claim 1. Williams and more particularly the part relied on by the Office Action does not teach the quantitative limitations cited in Claim 1 as amended and accordingly does not anticipate or render obvious Claim 1 as amended. In light of this, Applicant respectfully submits that Claim 1, as well as the claims that depend therefrom, is patentable over the cited references.

### **III. New Claims Are Patentable**

Applicant has added new independent Claims 15-18. These claims are supported by pages 4 – 6 of the specification of the application. Applicant respectfully submits that these claims are patentable over the cited references.

### **CONCLUSION**

In light of the amended and newly added claims and the remarks above, Applicant respectfully submits that the application is in condition for allowance and respectfully requests that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicant's counsel to discuss any outstanding issues so as to expedite the application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

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therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'W. Kevin Ransom', with a long horizontal flourish extending to the right.

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